

STAFF REPORT
WASTE DISCHARGE REQUIREMENTS
AND
WATER QUALITY CERTIFICATION
FOR
PORT OF STOCKTON
WEST COMPLEX DOCKS 14 AND 15 DREDGING PROJECT
ROBERTS ISLAND NO. 1 DREDGED MATERIAL DISPOSAL SITE
SAN JOAQUIN COUNTY

Background Information

In July 2000, the United States Navy conveyed approximately 1,400 acres of Rough and Ready Island (referred to as the West Complex) through transfer and lease to the Port of Stockton (Discharger). The Discharger plans to develop the West Complex in phases for maritime, industrial, commercial and other related operations over the next 20 years. As a part of this development and in order to facilitate access by deep draft commercial vessels, the Discharger proposes to dredge the sediments adjacent to Docks 14 and 15 at the east end of the West Complex. The project will remove sediment and debris to a depth of 35 feet below mean low, low water (MLLW), with one additional foot for overdredge. The project will lower the elevation of the river bottom by six feet below previously permitted depths.

Waste Discharge Requirements for dredging of all the docks (14 to 20) at the West Complex were previously presented to the Regional Board on 9 September and 15 October 2004. The Regional Water Board adopted Waste Discharge Requirements at the 15 October meeting. These requirements were petitioned to the State Water Resources Control Board where a draft order (22 April 2005) proposed to vacate the Regional Board order and directed the Regional Board to reconsider the issue after reviewing current information, as well as public and agency comments. The draft order also stated that the Regional Water Board should resolve the dredged material classification issue in a public session. Subsequently, the Discharger requested the Regional Water Board to rescind the requirements, relieving the State Water Board of the need to proceed with a hearing on the draft Order. The Regional Water Board rescinded the waste discharge requirements in June 2005.

After evaluating various dredging and disposal options, the Discharger filed a Report of Waste Discharge (RWD) on 7 April 2006 and amended the RWD on 24 May 2006. Currently, the Discharger proposes to dredge only docks 14 and 15 and to place the dredged material in the Roberts Island No. 1 (RN1) dredge material disposal (DMD) site, Areas B and C. The Discharger proposes to discharge only to Areas B and C because these areas have not received lime treatments. Lime treatments in Area A have affected groundwater. The proposed project would generate about 130,000 cubic yards of soil (80.6 acre-feet) and a total slurry volume (solids and entrained water) of less than 653 acre-feet. The Discharger has calculated that, with evaporation and infiltration, RN1

(Areas B and C) has sufficient capacity to accommodate the total dredged slurry volume produced from the dredging operation. No effluent from the dredged slurry will be discharged to the San Joaquin River or other surface waters.

The Discharger proposes to remove dewatered dredged sediment from RN1 and reuse it prior to 31 October 2007, the estimated start of the 2007 rainy season. To prevent potential groundwater impacts at the reuse sites, final placement of dredged sediment would be restricted to sites beneath engineered covers such as buildings, foundations, slabs, parking lots or roadways; and located at least two feet above groundwater.

Tentative Waste Discharge Requirements (WDRs) and a draft Water Quality Certification were circulated for public review beginning on 26 May 2006 with comments due on 26 June. Staff received comment letters from the Discharger, Delta Keeper, California Sportfishing Protection Alliance (CSPA), Shute, Mihaly & Weinberger, LLP (SMW), and Steve Bond and Associates. No comments were made specifically regarding the draft Water Quality Certification. Staff has made changes to the tentative WDRs to address some of the expressed concerns and to correct minor typographical errors. The revised tentative WDRs are included with the agenda item containing this staff report. However, despite these changes significant differences remain between the commenters and staff. The major outstanding issues are discussed below.

Major Issues

The major issues to be decided by the Regional Water Board include:

1. Should the dredged material be classified as inert or designated waste? If it is classified as a designated waste, does RN1 need to be constructed to the standards of a Class II Waste Management Unit?
2. Will the impact on dissolved oxygen due to the proposed dredging operation and the increased residence time for stream flow in the Deepwater Ship Channel be adequately mitigated by requirements in the WDRs?
3. Does the Discharger's adopted EIR satisfy the CEQA requirements needed for the Regional Water Board to adopt the tentative WDRs?
4. Does the potential seepage through the disposal site levees into the nearby agricultural drainage ditches require effluent limits and a NPDES permit?

Inert vs. Designated Waste

Robert Perlmutter of SMW submitted comments on behalf of the Friends of Riviera Cliffs, Stockton Standing Up and the Deltakeeper Chapter of Baykeeper. Perlmutter states that the issue of whether the dredged materials are a "designated waste" or "inert waste" is "... vital to the determination of how such wastes are handled, ..."

Designated wastes are defined in Section 13173 of the California Water Code as either of the following:

- (a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.
- (b) Nonhazardous waste that consists of, or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.”

In the case of the dredged material from docks 14 and 15, section (a) regarding hazardous wastes is not applicable. Section (b) requires substantial analysis. The line separating inert wastes from designated wastes is not a clear one. The definition of designated wastes states that these wastes consist of, or contain, pollutants that, under ambient environmental conditions **at a waste management unit**, (emphasis added) could be released in concentrations exceeding water quality objectives. This definition allows a waste to be classified as inert or designated waste depending on ambient environmental conditions at a waste management unit. A waste may be classified as “inert” in one location and “designated” at another location.

In addition to the uncertainty of classification resulting from consideration of the threat to water quality at each disposal location, there is no test method that will precisely predict the threat to water quality posed by a particular solid waste. Liquid wastes are often easy to classify, as they are already in a form that can move quickly into surface or ground waters. Solid wastes, on the other hand, must leach constituents in sufficient volume and concentration to pose a threat to water quality. In order to classify the threat to water quality, tests may be used to simulate the leaching process that will act on the discharged wastes.

The California Waste Extraction Test (WET) was developed to predict the mobility of waste constituents from wastes discharged to an acidic environment, such as a municipal landfill with rapidly-degrading organic matter. The test exposes a pulverized solid waste sample to citric acid for 48 hours and then analyzes the resulting liquid.

In response to the need to predict the threat from other materials that are not acidic or discharged to an acidic environment, the Deionized Water Waste Extraction Test (DIWET) is often used. The DIWET substitutes deionized water for the citric acid extraction solution of the standard WET.

Classification of dredged material has been difficult. Dredged materials from the Sacramento-San Joaquin Delta have the potential to become acidic as they oxidize, and

the materials are typically discharged to an environment rich in peat, which has a low pH. However, use of the standard WET generated results with high levels of many metals. The threat to water quality shown by standard WET results has not been verified in the field. Therefore, there is strong evidence that the standard WET results overstated the threat to water quality.

DIWET results for metals constituents are substantially lower than that from the corresponding standard WET test. Dischargers requested that Water Board staff approve the use of the DIWET or some other test to predict the threat to water quality from dredged materials. Water Board staff countered that if DIWET results were to be used, the wastes must be discharged to a non-acid environment. This is difficult in the Delta where most soils are acidic. The Port of Stockton, desiring to use DIWET results, applied lime to its wastes to maintain an environment with pH greater than 6.0. As a result of the lime application, Water Board staff has seen an increase in total dissolved solids (salts) in groundwater below the site. Subsequently, Water Board staff has not approved further use of lime to neutralize dredged materials at disposal sites.

This still leaves open the question of an appropriate test to predict the threat to water quality from dredged materials, making it difficult to classify these wastes as either “inert” or “designated.” The State Water Resources Control Board has not provided guidance regarding this issue. The San Francisco Bay Regional Water Board does not classify dredged material as either “inert” or “designated.” Since the materials are beneficially reused, the San Francisco Bay Water Board treats dredged materials as a product rather than a waste. Both the State Water Resources Control Board and the San Francisco Bay Water Board are members of the “Long Term Management Strategy” (LTMS) that was developed to cover dredging and dredged material reuse within the San Francisco Bay region. The goal of the LTMS is to ensure that reuse of dredge material does not make water quality any worse. However, the Delta has been listed as impaired for a number of substances, several of which are present in dredge materials. Rather than trying to prevent worsening conditions, the Central Valley Water Board is tasked with making water quality better in the Delta, and eventually removing impaired water body listings.

Dredged material samples from Docks 14 and 15 have been tested with the DIWET, and the DIWET concentrations exceed water quality objectives for lead and arsenic. Lead has been shown to move slowly through soils, and this has been verified by groundwater monitoring at the Roberts Island disposal site. While DIWET results exceed water quality objectives for lead, groundwater beneath dredge materials has been shown not to exceed objectives. Background arsenic concentrations in groundwater measured at three borings (BKG-1, BKG-5, & A1@10) and at monitoring well MW-9p (4 monitoring events) range from 11 to 35 ppb and averages 21 ppb. Therefore, estimated background arsenic concentration in groundwater at the disposal site likely exceeds arsenic DIWET results for the dredge materials (4.4 and 4.8 ppb), indicating that arsenic in dredge materials will not adversely impact groundwater quality at the disposal site.

In discussing water quality objectives, the Basin Plan (page III-1.00) states, “achievement of the objectives depends on applying them to controllable water quality factors. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or the Regional Water Board, and that may be reasonably controlled. Controllable factors are not allowed to cause further degradation of water quality in instances where uncontrollable factors have already resulted in water quality objectives being exceeded.” Natural background concentrations of arsenic are not considered to be controllable water quality factors. Where natural background water already exceeds the objective, as in the case for arsenic, controllable water quality factors, such as the discharge of waste, that do not make background conditions any worse, are not considered to be a violation. The Regional Board does not have the authority to require that natural background arsenic concentrations be improved upon.

To recap, the dredged material from the Port of Stockton must be classified as “inert” or “designated” waste. The classification is difficult because there is no definitive test to differentiate between “inert” and “designated” wastes. A waste may be “inert” at one location and “designated” at another location. The WET and DIWET have limitations in their ability to accurately predict future water quality impacts. Rather than making a further attempt to classify the dredged materials from Docks 14 and 15, Regional Water Board staff have required that the materials be removed from the RN1 site after the first rainy season and placed in locations where the materials are clearly classified as “inert.”

At the RN1 DMD site, previous dredging events have discharged similar quality dredged materials to the unit. Ongoing monitoring of dredged material leachate collected at MW-5d indicates that arsenic, iron, manganese, sodium, chloride, sulfate, ammonia and TDS are present in concentrations that exceed water quality objectives. However, monitoring of background and sidegradient wells (MW-9p, -9s, -10s, -11p and -11s) have detected the same constituents in excess of water quality objectives. In general, concentrations in both sidegradient and downgradient wells increase as a function of the distance from the river. Staff tentatively concludes that dredged material leachate has the same net effect as groundwater interaction with the native soils. The Discharger will be required to closely monitor dredged material leachate, drainage ditch water, background groundwater, sidegradient groundwater and downgradient groundwater during the proposed dredge event to determine if staff’s initial conclusions are supported. Based on the current data set, we do not see an increased degradation of water quality from the dredged materials compared to the degradation from native disposal site soils.

While the definitions in the California Code of Regulations could support classification of the dredged material from Docks 14 and 15 as designated waste because the DIWET results exceed water quality objectives for lead and arsenic, site-specific data from the disposal site do not corroborate a threat to groundwater quality and beneficial uses. For

this reason, staff considers this dredged material to be inert waste, when placed in a location where it will not impact water quality. At the RN1 DMD site (Areas B and C) and the approved reuse sites, the dredged material is not expected to impact water quality, therefore, will be regulated as an inert waste.

Steve Bond, in his 26 June 2006 letter states that the dredged spoils are designated wastes. He states that:

- (1) "The dredge spoils (wastes) contain soluble contaminants that can be released in concentrations exceeding applicable water quality objectives.
- (2) "The disposal areas are waste management units (WMU's) also defined in Title 27 and in Porter-Cologne Water Quality Control Act,
- (3) "The geologic media underlying RN-1/DMD does not isolate the leachate from the wastes from the waters of the state. The RN-1/DMD is not underlain by natural geologic materials which have a hydraulic conductivity of not more than 1×10^{-6} cm/sec
- (4) "The wastes will not be underlain by natural geologic materials which are of sufficient thickness to prevent vertical movement of fluid, including waste and leachate, from WMU's to waters of the state,
- (5) "The WMU's remain in the same location and groundwater is essentially the same depth as in earlier versions of the RWD."

Steve Bond is correct in his statement of these facts. Following this, Mr. Bond states 6 objections to the project. Each is described and addressed as follows:

- I. Comment: The site is underlain by geologic materials which have a hydraulic conductivity of not more than 1×10^{-6} cm/sec and that the geologic media does not isolate the wastes from waters of the state.

Response: This is a correct statement. Mr. Bond makes this statement in order to demonstrate that RN 1 does not meet the Title 27 requirement that a Class II landfill be immediately underlain by natural geologic materials, which have a hydraulic conductivity of not more than 1×10^{-6} cm/sec. However, the Discharger has not requested that RN 1 be classified as a Class II Waste Management Unit. Staff's analysis concluded that the dredge material, when placed in this location is appropriately classified as "inert" waste. Therefore, Class II containment is not required.

- II. Comment: The sites which will ultimately receive the wastes are no more protective of ground water quality than the Roberts Island disposal site. The wastes will have drained the polluted pore water before they are removed. The wastes will be subject to rewetting, oxidation and leaching at their new location. There are no provisions to guarantee proper handling of the wastes once they are transferred.

Response: Mr. Bond has assumed that the dredged material will be taken to Daggett Road or Neugenbauer Rd. In previous projects, dredged material has been taken to these locations. The dredged material from Docks 14 and 15 is not proposed for reuse at those locations. The sites to be used have not been identified yet. However, Finding 29, based on the RWD, describes reuse as follows: "Placement and reuse of the dredged sediment will be restricted to sites beneath engineered covers such as buildings, foundations, slabs, parking lots or roadways; and at least two feet above any significant groundwater bearing zone." The WDRs will be revised to require the Discharger to submit a plan for reuse and obtain Executive Officer approval of the plan for placing the wastes in accordance with Finding 29. Finding 29 has also been revised to delete the word "significant."

- III. Comment: The Discharger's "Metals Attenuation Study" and cation exchange capacity analysis are defective. In particular, the Discharger's analysis of the fate of arsenic is defective, the pore water concentrations were misrepresented and collection of samples were biased due to the exclusion of more permeable materials. Since arsenic does not exist as a cation in the dissolved state, it is not subject to cation exchange as implied by the Discharger's cation exchange analysis. Use of the DIWET underestimates the pore water concentrations because the DIWET dilutes the tested soil mass with ten times the mass of deionized water. Since the cation exchange capacity study used clay samples, while most flow will be through more permeable materials, the sampling bias overestimated the actual cation exchange capacity of soils beneath the dredged material disposal site.

Response: The failure to appropriately consider the ability of cation exchange to reduce the concentration of arsenic is an appropriate criticism. However, arsenic concentrations in background groundwater at this site exceed both the measured arsenic concentration in existing dredged material leachate and the DIWET arsenic concentration from the predredge analyses for the project. Existing monitoring in the Roberts Island Disposal site shows that arsenic does not increase in downgradient groundwater.

- IV. Comment: The Discharger compared results of extraction tests (arsenic) to a broad range of water supplies in San Joaquin County in lieu of establishing background conditions.

Response: Establishment of background concentrations in groundwater at the RN1 site is ongoing. At this time we have the data from seven independent background samples. For statistical reasons, staff considers twelve samples to be the minimum number necessary to calculate background. From existing data, the background arsenic concentration is estimated to be approximately 21 ppb. This

result is consistent with data from other areas in the Delta and is greater than the DIWET arsenic concentration from the predredge analyses for this project. Background arsenic data shows little variation and staff does not expect that inclusion of five additional samples will greatly change the estimated background arsenic concentration.

- V. Comment: The Port has presented an informal argument that suggests that the Basin Plan incorrectly identifies certain beneficial uses.

Response: Beneficial Uses are designated in the Basin Plan. These are legally enforceable even if they are not current or contemplated in the near future uses. For the reasons stated above, the tentative WDRs will not result in impacts to beneficial uses designated in the Basin Plan.

- VI. Comment: It appears that Roberts Island groundwater has been adversely affected by past and current disposal practices. Unfortunately the current round of sampling and analyses exhibit analytical flaws. The calculated values for TDS compared to reported values were off by as much as 2,000% and the anion cation balance was not acceptable according to Standard Methods.

Response: The Roberts 1 DMD site has received dredged material from maintenance dredging of the Stockton Deep Water Ship Channel for more than 2 decades and has received dredged material from a prior West Complex dock dredging project. Ongoing monitoring of dredged material leachate in the DMD indicates that arsenic, iron, manganese, sodium, chloride, sulfate, ammonia and TDS are present in concentrations that exceed water quality objectives. However, samples from background and sidegradient wells and borings detect the same constituents in similar concentrations. In general, soluble constituent concentrations in groundwater increase as a function of the distance from the river. Water Board staff tentatively conclude that dredged materials and native soils are chemically similar, and mixing groundwater with dredged material leachate has the same net effect as groundwater interaction with the native soils. The WDRs requires the Discharger to monitor dredged material leachate, drainage ditch water, background groundwater, sidegradient groundwater and downgradient groundwater during the coming dredging event to determine whether our initial conclusions are valid. Based on the current data set, we do not see an increased threat to water quality from the discharge of dredged materials at this site.

Dissolved Oxygen Mitigation

The Discharger will incrementally increase the volume of the Stockton Deep Water Ship Channel (DWSC) as a result of the proposed dredging. The increase in volume will, in turn, increase the hydraulic residence time for stream flow in the channel. Increased

residence time will allow more time for biochemical oxygen demand to be expressed. In addition, the activities associated with the development and operation of the West Complex may contribute to an increase in the amount of oxygen demanding substances discharged to the channel. The DWSC is listed as impaired due to low dissolved oxygen (DO) on the Clean Water Act Section 303d list.

In January 2005, the Central Valley Water Board adopted *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel* (DO Control Program). In November 2005, the State Water Board approved the DO Control Program with minor modifications. The DO Control Program identifies the Stockton DWSC geometry as a major contributor to the DO impairment and recommended to the U.S. Army Corps of Engineers that it should reduce the associated impact. The DO Control Program requires that a report be submitted by the Corps evaluating the impact of the DWSC on the DO impairment. The DO Control Program outlines other regulatory actions that can be taken by the Regional Board to address the impairment. One such action is the requirement of mitigation measures through WDRs and/or Clean Water Act Section 401 water quality certifications that may be required for any project that increases DWSC geometry.

In June 2004, the Discharger approved an Environmental Impact Report (EIR) that included dredging of all the docks at the West Complex. The EIR identifies a single significant impact on water quality. This impact is identified as “Long-term, far-field reduction of dissolved oxygen in the San Joaquin River.” and classifies it as a cumulative significant impact, before mitigation. The EIR identifies the following mitigation required to reduce the impacts on dissolved oxygen to less than significant: “The Port shall take ownership and operational responsibility of the aeration device currently owned and operated by the USACOE [Corps]. The USACOE [Corps] jet aerator was originally installed to mitigate for deepening of the DWSC from –30 to –35 feet. The aeration facility was constructed in 1993 and has been operated, as conditions have warranted, since then. The USACOE [Corps] agreed to provide aeration that would maintain a 0.2 mg/l DO increment above background conditions, whenever at any station measured by the City of Stockton dropped below 5.2 mg/l during September 1 through November. Consequently, the USACOE [Corps] requirement depends on the San Joaquin river stream flow and existing background DO levels.”

The mitigation for dissolved oxygen, identified in the EIR, is required by this Order. Consistent with 14 CCR section 15096, the WDRs include additional measures beyond those identified in the EIR to address DO, including requiring compliance with the applicable water quality objective in the receiving water for DO contained in the Basin Plan. Attachment C requires the Discharger to provide significantly more aeration than the Corps’ previous commitment of operating the jet aeration device only during the months of September, October, and November, given the same conditions.

Specifically, Attachment C requires the following mitigations for the long-term effects of increased channel geometry on the existing DO impairment. The Discharger is required to operate the existing Corps aerator and/or other aerator(s), as needed, to provide:

1. During the months of September through November, a rate of 2,500 pounds per day of DO up to a maximum of 227,500 pounds per year whenever background DO concentrations drop below 6 mg/l.
2. During the months of December through August, an additional rate of 2,500 pounds per day of DO, up to a maximum of 250,000 pounds per year whenever background DO concentrations drop below of 5.2 mg/l.

When the Port is required to provide aeration as specified above, the Port must also:

3. Provide an additional rate of 840 pounds per day of DO, up to a maximum of 84,000 pounds per year, to contribute one-third of the oxygen deficit based on the current level of development.
4. Provide a rate of 750 pounds per day of DO, up to a maximum of 75,000 pounds per year, to mitigate for the additional DWSC volume in the vicinity of the Port of Stockton West Complex dredging project.

In order to mitigate the potential reduction in DO concentrations related to the actual dredging operation, the Discharger will operate a localized oxygen diffuser near the dredging operation. The Discharger will provide additional aeration at a rate of approximately 500 pounds of oxygen per day as close to the dredge as possible without compromising safety while dredging operations are underway.

Attachment C has been revised to reflect the current status of the DO TMDL, the proposed dredging project and to make the DO trigger for aeration more stringent.

Comment: Several commenters requested a prohibition on dredging when the DO objectives are not met in the Stockton Deep Water Ship Channel.

Response: *The prohibition on dredging when DO objectives are not met has been added to the tentative WDRs*

Comment: Bill Jennings, representing CSPA, Watershed Enforcers and San Joaquin Audubon, commented that it is illegal for the Port to rely upon aeration provided by the aeration demonstration project being funded and constructed by the California Department of Water Resources. Robert Perlmutter of SMW commented that the tentative WDRs would have the Port satisfying its aeration requirements through use of the DWR Aeration Demonstration Project. This is a temporary project constructed and

operated with State funds and is not appropriate for compliance with aeration requirements.

Response: The Port is participating in the operation and maintenance of a Department of Water Resources (DWR) sponsored aeration demonstration project. The concern is that some of the mitigation for the Port's West Complex dredging will be paid (capital costs and initial maintenance costs) using public funds. Whether or not this is an appropriate use of public funds will need to be determined by DWR. If DWR determines that the Port may not participate in the aeration demonstration project, then the Port will be required to provide aeration through some other aeration device. The WDRs only specify the amounts of oxygen that needs to be delivered to the water column, not the means and methods by which they shall be successfully achieved. Regardless of whether aeration is provided through participation in the DWR- sponsored aeration demonstration project or through some other aeration device, the Port must provide the Regional Water Board with the operation and maintenance plan for any aerator to be used as mitigation for this project.

Comment: Bill Jennings commented that there is no documentation on whether the Corps aerator disperses oxygen to the water column. Robert Perlmutter commented that the Corps aerator has not been demonstrated effective at delivering its design capacity of oxygen to the water column and should not be allowed as a means of mitigation

Response: Staff is aware of difficulties the existing aerator has had in meeting its design output. As such, the Corps has not always been meeting its obligations under the EIR/EIS issued for the dredging performed in the 1980's to deepen the DWSC from 30 to 35 ft. This non-compliance, however, is not within the jurisdiction of the Regional Board to enforce; no Regional Board requirement has been violated.

Staff is aware of efforts by the Port (who now operates the aerator on behalf of the Corps) to correct these problems, and improvements have been made. Whether the existing Corps aerator is used or not, aeration technology exists with the capability of dissolving the required amounts of oxygen into the water column.

Use of the existing Corps aerator, or any other aerator, for compliance with the proposed WDRs is contingent upon the Port providing data that demonstrates its effectiveness at dissolving the required amounts of oxygen to the water column. If these requirements are not met, some other means of delivering the required oxygen must be provided and evidence of its effectiveness provided to the Regional Board. The means and methods by which the Port will comply with the aeration requirements in the WDRs are not dictated by the Regional Board. Language to this effect is already part of Attachment C to the WDRs, and the tentative WDRs have been revised to require a report documenting the performance of the aerators to be used.

Comment: Robert Perlmutter of SMW commented that the Port's commitment to operate

the existing aerator on behalf of the Corps does not qualify as mitigation for the proposed dredging.

Response: Item 1 of Attachment C to the WDRs requires aeration equivalent to the aeration that the Discharger has already committed to provide on behalf of the Corps. Together Items 1, 2, and 3 of Attachment C are mitigation intended (based on our current understanding of the impairment) to address DWSC geometry existing prior to the proposed dredging operation. The mitigation required by the Port for the incremental increase of channel geometry caused by the proposed dredging is the 750 lbs/day, or 75,000 lbs/year and is required by Item 4 of Attachment C. This is separate from the oxygen input that must be provided by Port on behalf of the Corps in Item 1 of Attachment C. Credit against its requirements under Item 4 is not being given for operation of the Corps aerator under Item 1. It is reasonable to give the Discharger credit for actions already being taken to address pre-project conditions.

Comment: Robert Perlmutter commented that aerator operation should be triggered at some value above the objective.

Response: The tentative WDRs have been revised to make the trigger DO concentration (below which the aerators must be operated) 5.2 mg/L, or 0.2 mg/L above the water quality objective from December through August.

Comment: Robert Perlmutter commented that the range of impact on DO around the existing Corps aerator cannot be measured beyond a 50 ft. radius.

Response: Once oxygen is dissolved in the water column, natural currents and diffusion will distribute it through the DWSC. The area of influence around an aerator will naturally be a function of how much oxygen is being dissolved in the water column at the source. If the amount of oxygen input is small compared to the total amount needed to increase the concentrations in the entire DWSC, the concentrations around the aerator will naturally fall off quickly. This is not necessarily a problem with the aeration device; rather it is due to the fact that there is such a large deficit in the DWSC to begin with.

Location of the aerator, however, is important, and the location of the Corps aerator is within the area of worst impairment. If a different aeration or supplemental device is required, it needs to be located somewhere in the area of worst impairment. In addition, the tentative WDRs have been revised to require the temporary aerator be deployed as close as possible to the dredging operation without compromising safety.

Comment: Bill Jennings commented that monitoring for DO does not reflect river conditions in that the river is known to be stratified at times, and DO concentrations are known to vary with depth.

Response: *Mr. Jennings' point is valid that DO commonly varies with depth. In consideration of this fact, DO monitoring is specified in the Monitoring and Reporting Requirements to be conducted during dredging operations by means of grab samples taken at three depths - two feet below the water surface, mid-depth and within two feet of the river bottom.*

There are comments on dissolved oxygen issues in the 19 July 2005 National Marine Fisheries Service (NMFS) Biological Opinion (BO) on the West Complex Dredging Project. The following comments were raised.

On page 48 of the BO, NMFS staff expresses concern about the zone of effect for the aerators and whether they will provide relief for the area actually being affected by the disturbed sediment.

Response: *The tentative WDRs have been revised to require the temporary aerator be deployed as close as possible to the dredging operation without compromising safety.*

On pages 52 and 53 of the BO, NMFS staff suggests that the 0.2 mg/L increase in DO estimated from operation of the aerators will not be adequate to alleviate the entire DO impairment.

Response: *These WDRs require mitigation for the West Complex dock dredging project only. It is not the obligation of the Port to alleviate the entire dissolved oxygen problem in the DWSC, only the incremental impact caused by the dredging project. That said, the WDRs require much more aeration than would theoretically be required to address the incremental deepening alone (4,090 pounds per day vs. 750 pounds per day).*

Does the Discharger's EIR fulfill the CEQA requirements needed for the Regional Board to adopt the tentative WDRs?

Comment: Bill Jennings of CSPA commented that a new CEQA document would be needed if the DMD site is expanded.

Response: *The WDRs have been revised to include a prohibition on the expansion of the DMD site capacity. This prohibition does not preclude the Port from performing necessary maintenance on the berms of the DMD site or authorized reuse of the dredged material.*

Comment: Robert Perlmutter of SMW commented that a new CEQA document is needed to analyze substantial changes to the Project:

- 1) Availability of new ground water information from the DMD site, and the data shows ground water contamination

Response: The new ground water information does not show that the dredged placement at RNI has impacted groundwater. As discussed earlier, Water Board staff tentatively concludes that dredged materials and native soils are chemically similar, and mixing groundwater with dredged material leachate has the same net effect as groundwater interaction with the native soils.

2) Reuse of dredged material must be analyzed in SEIR

Response: The reuse of dredged material was discussed in the Port's EIR. As a responsible agency, the Regional Board is required to ensure that mitigation measures are adequate to avoid or substantially lessen potential water quality impacts. The tentative WDRs have been revised to require the submittal of a detailed plan and EO approval prior to reuse. There is also a new requirement that recipients of the dredged material be notified of the material characteristics and the requirements of the WDRs prior to reuse.

3) The potential use of pure oxygen gas in the Corps' aerator must be evaluated in a CEQA document to evaluate potential impact on sensitive fish species

Response: As discussed earlier, the tentative Order requires that the Discharger provide a certain amount of oxygen to the San Joaquin River Deep Water Ship Channel. The Order does not specify how the Discharger will do this, i.e., use air or pure oxygen. If pure oxygen is used, the Discharger will need to apply for all of the necessary permits and comply with all CEQA requirements.

4) As a CEQA responsible agency, the Regional Board may not issue the WDRs if any feasible alternatives or mitigation measures are available to substantially lessen the direct or indirect environmental effects of the Regional Board's decision. The Regional Board is also required to make findings for each significant effect of the Project that mitigation measures are adequate to avoid or substantially lessen such effect that unavoidable adverse impacts are outweighed by social or other benefits.

Response: On 23 June 2004, in accordance with the California Environmental Quality Act (CEQA) (PRC, Section 21000, et seq.), the Port of Stockton adopted an Environmental Impact Report (EIR) for the West Complex project. The project component, involving dredging of the river bottom adjacent to the West Complex docks to an elevation of 36 MLLW to allow for increased navigation activities at the West Complex, was specifically addressed in the EIR. The Regional Water Board, as a responsible agency, has considered the EIR prepared by the Port of Stockton as required by 14 California Code of Regulations section 15096. The Regional Water Board has included mitigation measures and requirements described in the EIR, in these WDRs to address significant environmental impacts that are within the jurisdiction of the Regional Board.

The EIR identifies a single significant impact on water quality. This impact is identified as “Long-term, far-field reduction of dissolved oxygen in the San Joaquin River.” and is classified as a cumulative significant impact, before mitigation. The EIR identifies the following mitigation as required to reduce the impacts on dissolved oxygen to be less than significant: “The Port shall take ownership and operational responsibility of the aeration device currently owned and operated by the USACOE [Corps]. The USACOE [Corps] jet aerator was originally installed to mitigate for deepening of the DWSC from –30 to –35 feet. The aeration facility was constructed in 1993 and has been operated, as conditions have warranted, since then. The USACOE [Corps] agreed to provide aeration that would maintain a 0.2 mg/l DO increment above background conditions, whenever at any station measured by the City of Stockton dropped below 5.2 mg/l during September 1 through November. Consequently, the USACOE [Corps] requirement depends on the San Joaquin river stream flow and existing background DO levels.”

The mitigation for dissolved oxygen identified in the EIR, along with other mitigations, is required by this Order. Consistent with 14 CCR section 15096, the WDRs include additional measures beyond those identified in the EIR to address DO, including requiring compliance with the applicable water quality objective in the receiving water for DO contained in the Basin Plan.

The CEQA Guidelines state that a responsible agency shall not approve the project as proposed if the agency finds any feasible alternatives or feasible mitigation measures “within its powers” that would substantially lessen or avoid significant effects on the environment. In this proposed action, the Regional Water Board is regulating the dredging and disposal aspects of the Port’s project. The EIR identified impacts on levels of dissolved oxygen as a significant environmental impact and mitigation measures to reduce the impact to less than significant. With respect to that impact, the Regional Water Board has the authority to require the Port to comply with applicable water quality objectives for dissolved oxygen. The proposed WDRs include requirements to comply with the Basin Plan’s dissolved oxygen requirements. Water Code section 13360 prohibits the Regional Water Board from specifying the “design, location, type of construction, or particular manner in which compliance may be had . . . “ It is not within the Regional Water Board’s powers in this case to specify the means for complying with the dissolved oxygen requirements.

The Port prepared a final EIR, which was challenged in state court. Based on the CEQA Guidelines, the EIR must be conclusively presumed to comply with CEQA for purposes of use by the Regional Water Board unless it is determined by the court not to comply with CEQA. That has not occurred.

Does the potential seepage through levees require effluent limits and an NPDES permit?

Comment: Bill Jennings of CSPA commented that, “ The previous Order contained effluent limitations for a number of waste constituents. ...the tentative Order is a massive backsliding from the pervious Order.” He also commented that, “The CEQA document shows that the agricultural ditch at times actively dewateres the DMD. This discharge requires an NPDES permit. Furthermore, the fact that the Discharger has conducted treatment of the dredge spoils means that the DMD is a waste treatment unit and also requires an NPDES permit.”

Response: *The tentative WDRs do not have effluent limits because they are more restrictive than the previous Order and prohibit surface water discharges. Discharge Prohibition No. 3 states, “ The discharge of effluent, including bypass or overflow of untreated or partially treated waste from RN1 Areas B and C to surface waters and surface water drainage courses is prohibited.” There are requirements to install a stilling well in the agricultural ditch bordering RN1, to conduct continuous monitoring of any water in the stilling well, and to monitor any standing water in the agricultural ditch. If the monitoring results show that there is a discharge of waste into the agricultural drains, the Discharger would be in violation of the WDRs.*

Other Issues

Toxicity

Comment: Bill Jennings of CSPA commented that the findings are incomplete in that only toxicity to *Chironimus tentans* is considered. Mr. Jennings also commented that elutriate obtained by the standard elutriate test (SET) on the new horizon of dock 15 was found to be toxic to fathead minnow and that this needed to be addressed by the WDRs.

Response: *Sediment toxicity testing of the new sediment horizon at docks 14 and 15 did not indicate a toxic response for Chironimus tentans or Hyalella azteca. Finding No. 69 has been changed to reflect this.*

The SET is used to predict potential impacts during dredging. Toxicity in the SET for the new horizon sample of dock 15 has been adequately addressed by the WDRs. The toxicity was shown using 100% of elutriate evaluating a sample at the bottom of the dredging operation (the new horizon to be exposed). Since the SET is used to evaluate dredging impacts and this area will not be dredged, the results of SET results are not very meaningful. Also, if some portion of the new horizon does get dredged, the Discharger will be using a hydraulic dredge from which a very small percentage of the elutriate will escape into the surrounding water column. Finally, monitoring will be required during the dredging operation and if the water quality objective for turbidity or any other standard parameter is violated, toxicity testing will be triggered.

Comment: Bill Jennings commented that prior to the October 2004 Board meeting further toxicity testing of sediment samples from docks 14 to 20 were not completed due to time constraints, and since that time no further toxicity testing has been undertaken. The commenter further states that it is inappropriate to adopt an Order that violates the Basin Plan for toxicity. He further commented that the previous Order required the Discharger to demonstrate that the new sediment horizon for each dock (14 through 20) was not toxic before moving on to the next dock. However, the current project, for dredging docks 14 and 15, will be completed prior to toxicity information being received.

Response: *The previous rescinded Order involved the dredging of seven docks (14 through 20), some of which showed toxicity in the new horizon during pre-dredge sediment testing. Therefore, the previous Order required further testing and/or mitigation at each location before further dredging was conducted. The current project is limited to dredging at docks 14 and 15, and sediment testing at these locations did not indicate a toxic response for Chironimus tentans or Hyalella azteca at the new sediment horizon. Despite the lack of observed toxicity in samples taken at docks 14 and 15, the tentative WDRs require additional testing of the new sediment horizon and reporting to the Board after dredging is completed. If sediment toxicity is found in the new horizon, the Discharger will be required to undertake appropriate actions to mitigate this toxicity. Given that pre-dredge analyses did not reveal sediment toxicity at docks 14 and 15, the WDRs' requirements are appropriate and support the Basin Plan.*

Comment: Bill Jennings commented that the impacts from dredging in association with other major dischargers, such as the City of Stockton Wastewater Treatment Plant, are not addressed, and that the city's highest ammonia concentrations generally occur during the fall dredging window.

Response: *The tentative WDRs specify that dredging operations shall not cause ammonia to exceed the Criteria Maximum Concentration in Attachment D, regardless of the contribution of other dischargers. Ammonia concentrations will be monitored daily during the dredging operation.*

Biological Opinion

Comment: Bill Jennings commented that there is not an acknowledgement that the Biological Opinion issued by the National Marine Fisheries Service (NMFS) was completed or their concerns listed.

Response: *The revised WDRs will include a finding on the NMFS Biological Opinion (BO), but no additional requirements are needed to address the water quality issues discussed in the BO.*

On 19 July 2005, NMFS issued a "no jeopardy" BO for the West Complex Dredging Project. The issues discussed in the Water Quality section of the BO are similar to those

raised in an 8 September 2004 comment letter from NMFS on the tentative WDRs that was heard by the Regional Board in October 2004. In the BO, NMFS focused on potential impact of the proposed dredging project on the migration of endangered and threatened fisheries in the San Joaquin River. Specifically, concern was expressed with regard to the low dissolved oxygen in the Deep Water Ship Channel and the impact of exposure to contaminated sediment and poor water quality on fish. The dissolved oxygen issue was discussed earlier in the Staff Report. The comments regarding the contaminated sediment and water quality are general in nature. The water quality degradation discussion referred primarily to levels of metals in bottom sediments which may affect fish through direct contact as well as through food chain accumulation. Since the Discharger will be using a hydraulic dredge and has calculated the amount of sediment/elutriate lost to the environment to be less than one percent, the impact at the dredge site should not be significant. To verify this, monitoring is required during dredging, and if turbidity objectives are violated, toxicity and metals analyses are required. As discussed earlier, sediment toxicity was also evaluated, and monitoring will be conducted after the dredging occurs to evaluate sediment toxicity in the new sediment horizon. If sediment toxicity is found in the new horizon, the Discharger is required to undertake appropriate actions to mitigate this toxicity.

On 7 July 2006 a revised BO was issued, superceding the previous version. The revised BO was issued as a result of the recent listing of the North American Green sturgeon on 7 April 2006. The revised BO does not raise any new water quality issues.

The NMFS BO will be included in the US Army Corps' Section 404 dredging permit. The Corps must ensure that they and the Discharger comply with the terms and conditions and conservation recommendations in the BO.

RNI DMD Site and Freeboard Requirement

Comment: Bill Jennings commented that the minimum freeboard requirement of two feet at the dredged material disposal site is not adequate to protect against overtopping when considering rainfall during a 100-year return period. The commenter requests that the Regional Board provide a water balance signed by a registered engineer, which shows adequate storage capacity in the event of a 100-year rainfall event.

Response: The two feet of freeboard are required to prevent overtopping due to wave action. The Discharger must account for the additional storage volumes needed to accommodate rainfall. Failure to provide this storage could result in overtopping and discharge to surface waters in violation of WDRs. The volume of storage required depends on the date of discharge and how much evaporation/percolation takes place before winter precipitation adds to the volume of liquid in storage. The Discharger must operate the disposal site in accordance with WDRs.

Characterization of material

Comment: Bill Jennings commented that since a significant amount of metallic debris may be located along the docks, it is appropriate to use a magnetometer determine sediment sampling locations.

Response: *According to the Discharger, the debris is randomly distributed from the edge of the dock to the edge of the Deep Water Shipping Channel.*

Dredge Material Reuse

Comment: Bill Jennings commented that Finding 29 of the tentative Order is inconsistent with the Basin Plan since this finding requires any reused material to be placed at least two feet above any “significant” groundwater bearing zone.

Response: *The word “significant” has been deleted from the finding.*

Comment: Bill Jennings commented that the tentative Order would allow the placement of dredged materials along levees, and that the placement of dredged spoils near surface waters is inappropriate. Mr. Jennings also commented that the Order indicates the wastes will degrade water quality unless there is two feet of soil separation.

Response: *The tentative WDRs do not allow the placement of dredged materials along levees, unless the levees will have engineered covers and a two-foot separation from ground water. Staff did not make the finding that the two-foot separation from ground water is absolutely necessary to protect water quality. In fact, the DI WET data, background groundwater and leachate information from RN1 together indicate that the dredged material does not pose a threat to water quality. The requirement for a two-foot separation is to add an additional factor of safety.*

The tentative WDRs have been revised to require the submittal of a detailed workplan and approval from the Executive Officer prior to any reuse of dredged materials. The Discharger will also be required to notify the recipient of the dredged material of the requirements of these WDRs and the characteristics of the dredged material.

Dredging Impacts

Comment: Bill Jennings commented that the removal of any metal debris from the project area will likely be achieved using a crane and/or a clamshell dredge, and that elutriate loss from a clamshell can be as high as fifty percent, which will have a great potential to impact water quality.

Response: *The tentative WDRs require monitoring of standard parameters, including dissolved oxygen and turbidity during any in-water activity. Those parameters must comply with the applicable water quality objectives or dredging operations must cease.*

Comment: Bill Jennings commented that sediment lost to the hydraulic cutter head during dredging is highly dependent upon the type of sediment, the speed of the cutter head and the operational control, and that the range of values provided by the discharger for estimated sediment resuspension (0.12 to 0.78 percent) may be an underestimate. The commenter further states that a resuspension rate of 1.0 percent will result in violations of water quality criteria for turbidity, dissolved oxygen and ammonia.

Response: *According to the Discharger's calculations, the discharge from the cutter head will be less than one percent. To verify that water quality is not impacted during the dredging operation, the Monitoring and Reporting Requirements prescribe specific sampling and reporting for parameters of concern. If water quality objectives are exceeded, dredging activities must cease.*

Comment: Bill Jennings commented that additional text should be added to the tentative Order to restrict dredging to a specific area or depth.

Response: *The tentative WDRs already include a prohibition restricting the dredging operation to the area described in Finding No.7, which specifies the exact location of the dredging operation. The prohibition also restricts the maximum depth of the dredging to 36 feet below mean low, low water.*

Comment: The Regional Board has received a number of comments from Environmental Risk Services (ERS), representing the Discharger, the majority of which are minor in nature and refer to typographical or nomenclature edits to the tentative Order and/or Monitoring and Reporting Requirements. Unless otherwise noted, Staff concurs with these minor edits, which are reflected in the revised tentative Order, and discussed where appropriate below.

Comment: Mark O'Brien of ERS commented that the estimated project duration discussed in Finding #16 of the tentative Order should include an estimated 4 days for debris removal.

Response: *The change is reflected in the tentative WDRs.*

Comment: Mark O'Brien commented that the project window described in Finding #23 is not consistent with the dredging window described in the Biological Opinion.

Response: *The dredging window from the BO (between June 1 and Dec 31th) has been placed in the findings of the tentative WDRs.*

Comment: Mark O'Brien commented that it is inappropriate to restrict dredging when ambient DO falls below State objectives, since the Discharger is mitigating the effects of dredging in accordance with the Aeration Agreement in Attachment C of the tentative Order.

Response: *Staff does not concur. As discussed above, the DWSC is currently listed in accordance with Section 303d of the Clean Water Act as impaired due to dissolved oxygen, and the Regional Board has adopted a DO Control Program. The DO problem has caused fish kills and is preventing the attainment of all the beneficial uses in the Delta. The prohibition on dredging when water quality objectives are not met is appropriate to ensure that there are no further potential impacts to DO conditions.*

Comment: Mark O'Brien commented that Discharge Prohibition #A9 which refers to pH dependent effluent limitations for ammonia (Attachment D) should be modified to omit reference to Attachment D, since effluent discharge is prohibited.

Response: *The tentative WDRs will be revised to delete "effluent" from the title of Attachment D, however the limitations described for pH dependent ammonia concentrations are valid for the protection of aquatic life during dredging as a receiving water limit.*

Comment: Mark O'Brien commented that Discharge Prohibition #A10 which refers to Attachment E for copper limitations during dredging should be replaced with a reference to California Toxic Rule limits for copper.

Response: *The Criteria Maximum Concentrations listed in Attachment E are based on the California Toxic Rule limitations and are presented in this attachment as a reference. The tentative WDRs will be revised to delete "effluent" from the title of Attachment E.*

Comment: Mark O'Brien commented that Discharge Prohibitions A9, 10, 11, 12, 13,14,15, 17 and 18 should include the further restriction that when ambient water quality exceeds the given criteria, that downstream river water samples shall not exceed the ambient conditions by more than 20%.

Response: *The discharge prohibitions are based on meeting water quality objectives that are needed to protect beneficial uses of surface waters. In accordance with our Basin Plan, the tentative WDRs explicitly prohibit the dredging operation from causing violations of any applicable water quality objective. If a water quality objective is already violated in the surface water, the WDRs must still protect the beneficial uses and can not allow a further exceedance of that objective.*

Comment: Mark O'Brien commented that Discharge Specification #B5 is unnecessary since ponded water from the disposal site is prohibited from being discharged to surface waters.

Response: Discharge Specification #B5 is appropriate not only to prevent low DO effluent from entering surface waters but also to prevent anoxic conditions at the disposal site which may result in objectionable odors.

Comment: Mark O'Brien commented that aeration requirements, as specified in Attachment C of the tentative Order, are based on a dredged volume of 326,000 cubic yards of sediment, whereas the proposed project will remove a maximum of 130,000 cubic yards of sediment. Therefore, the commenter suggests that the aeration requirement to mitigate for the increased volume of the Deep Water Ship Channel be adjusted to reflect the actual amount of proposed dredging.

Response: Staff recognizes that the DO requirements are based on the initial rescinded application for a much larger project involving the removal of significantly larger amounts of dredged material. However, since the proposed project addressed by this tentative Order is part of an anticipated larger project, and because some uncertainty exists in calculating exact net cause and effect from project operations on DO conditions in the Ship Channel, it is prudent to use the more conservative mitigation requirements specified for the anticipated total project. Attachment C of the WDRs has been revised to document that the aeration mitigation requirement account for dredging of all the docks at the West Complex.

Comment: Carrie McNeil on behalf of the Deltakeeper Chapter of Baykeeper submitted comments on the tentative WDRs. Ms. McNeil commented that the WDRs fail to appropriately prevent invasive species, regulate dredging impacts, regulate dredge spoil disposal, or to mitigate dissolved oxygen depletion. Ms. McNeil also commented that the WDRs do not comply with the state anti-degradation policies as it fails to regulate dredge spoils as a designated waste in order to protect groundwater from metals and other toxins.

Response: Most of the issues raised by Ms. McNeil have been addressed in the Staff Report. The one issue not addressed is the matter of invasive species. Invasive species are not regulated by the Regional Board.

Summary

Major and minor issues raised by commenters are addressed in the staff report. Minor edits have been made to the WDRs where appropriate. A summary of the response to the four major issues is as follows:

1. Should the dredged material be classified as inert or designated waste? If it is classified as a designated waste, does RN1 need to be constructed to the standards of a Class II Waste Management Unit? *Dredged material will be classified as an inert waste at RN1 because it is expected that native soils would affect groundwater in the same manner as dredged material.*

2. Will the impact on dissolved oxygen due to the proposed dredging operation and the increased residence time for stream flow in the Deepwater Ship Channel be adequately mitigated by requirements in the WDRs? *The EIR specifies mitigations that reduce impacts to less than significant. The tentative WDRs provide additional mitigations not specified in the EIR. The additional mitigations were developed by the Water Board's DO TMDL staff to account for the DO impacts from dredging of all of the docks at the West Complex.*
3. Does the Discharger's adopted EIR satisfy the CEQA requirements needed for the Regional Water Board to adopt the tentative WDRs? *Most of the CEQA issues raised by commenters relate to the dissolved oxygen issue, which was addressed in the staff report section on dissolved oxygen impacts. Findings have been changed to accurately cite the significant impact identified in the EIR. The other CEQA issues involve the RN1 DMD capacity and reuse of the dredged material. A prohibition on increasing the capacity and additional requirements on dredged material reuse have been added to the tentative WDRs. The Regional Water Board may rely on the EIR to adopt WDRs.*
4. Does the potential seepage through the disposal site levees into the nearby agricultural drainage ditches require effluent limits and a NPDES permit? *The WDRs prohibit any discharge of waste to surface waters, including the agricultural ditches outside RN1. Therefore, an NPDES permit is not required. For the same reason, effluent limits are not required.*